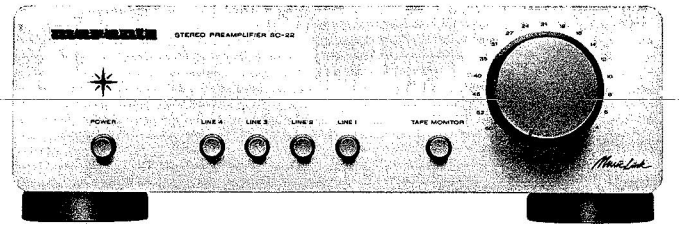
Service Manual

74 SC22/ 00G

STEREO PREAMPLIFIER



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marantz®

model SC-22

First issue: 1990

4822 725 50928

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound.
Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

MARANTZ INTERNATIONAL
Vestdijk 9
5600 MD Eindhoven
The Netherlands
Phone: +31/40.758290
Telefax: +31/40.75.82.99
Telex: 35000 PHTC NL routing IND NLMTFAT

ORDERING PARTS:

Parts can be ordered either by mail or by telex. In both cases, correct part number has to be specified.
The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

PARTS ORDERING

Parts may be ordered at the following addresses:

AUSTRIA
HORNYPHON
Vertriebsgesellschaft GmbH
Wienerbergstrasse 1
A 1101 Wien
Austria
Telex: 132.332

BELGIUM
SVD DIVISION MARANTZ
Industrialaan 1
1720 Groot-Bijgaarden
Belgium
Telex: 24466

CHILE
MARANTZ
DIVISION OF PHILIPS S.A.
AV. Santa Maria, 0760
Casilla 2687
Santiago
Telex: 240.239

DENMARK
MARANTZ
DIVISION OF PHILIPS
SERVICE A/S
Prags Boulevard 80
Postbox 1919
DK-2300 København S
Denmark
Telex: 31201

FINLAND
MARANTZ
DIVISION OF OY PHILIPS Ab
Kaivokatu 8
00100 Helsinki
Finland
Telex: 124811

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France
Telex: 611651

GERMANY
MARANTZ GERMANY GmbH
Alexanderstrasse 1
2000 Hamburg
Germany

THE NETHERLANDS
Elpro Marantz
Wint Hontlaan 28
3526 KV Utrecht
The Netherlands
Telex: 4748

NORWAY
MARANTZ
DIVISION OF PHILIPS A/S
Sandstuveien 40
0680 Oslo 6
Norway
Telex: 72640

GREAT BRITAIN
MARANTZ AUDIO U.K. Ltd
Unit 15/16
Saxon Way Industrial Estate
Moor Lane
Harmondsworth UB7 OLW
Great Britain
Telex: 935196

GREECE
SHERTON ELECTRONICS S.A.
P.O.Box 21025
Hippocratus Street 188
Athens 11471
Greece
Telex: 216.795

JAPAN
MARANTZ JAPAN, Inc.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
Ussama Building
Fahd al Saleem Street
P.O.Box 23781
Safat-Kuwait
Telex: 22694

ITALY
MARANTZ ITALIANA S.P.A.
Via Chiese, 74
20126 Milano
Italy

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia
Telex: 401530

SOUTH AFRICA
MARANTZ
DIVISION OF PHILIPS S.A.
Main Road Martindale
P.O. Box. 58088
Newville 21114
South Africa

SPAIN
PHONO S.A.
Ignacio Iglesias 10
Badalona (Barcelona)
Spain
Telex: 59355

SWEDEN
MARANTZ
DIVISION OF PHILIPS
Försäljning AB
Tegeluddsvägen 1
S-115 84 Stockholm
Sweden
Telex: 14060

SWITZERLAND
MARANTZ
Technischer Service
Duenstrasse 3
3186 Düdingen
Switzerland

TURKEY
DOGRUOL Ltd.
I.M.C.
6 Blok N°6310
Unkapani
Istanbul
Turkey
Telex: 22085

MALTA
CACHIA & GALEA
Republic Street, 68D
Valetta
Telex: 1682

PORTUGAL
MARANTZ
Divisao philips S.A. service
Outurela-carnaxide
2795 LinDA-A-VELHA
Telex: 43906

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

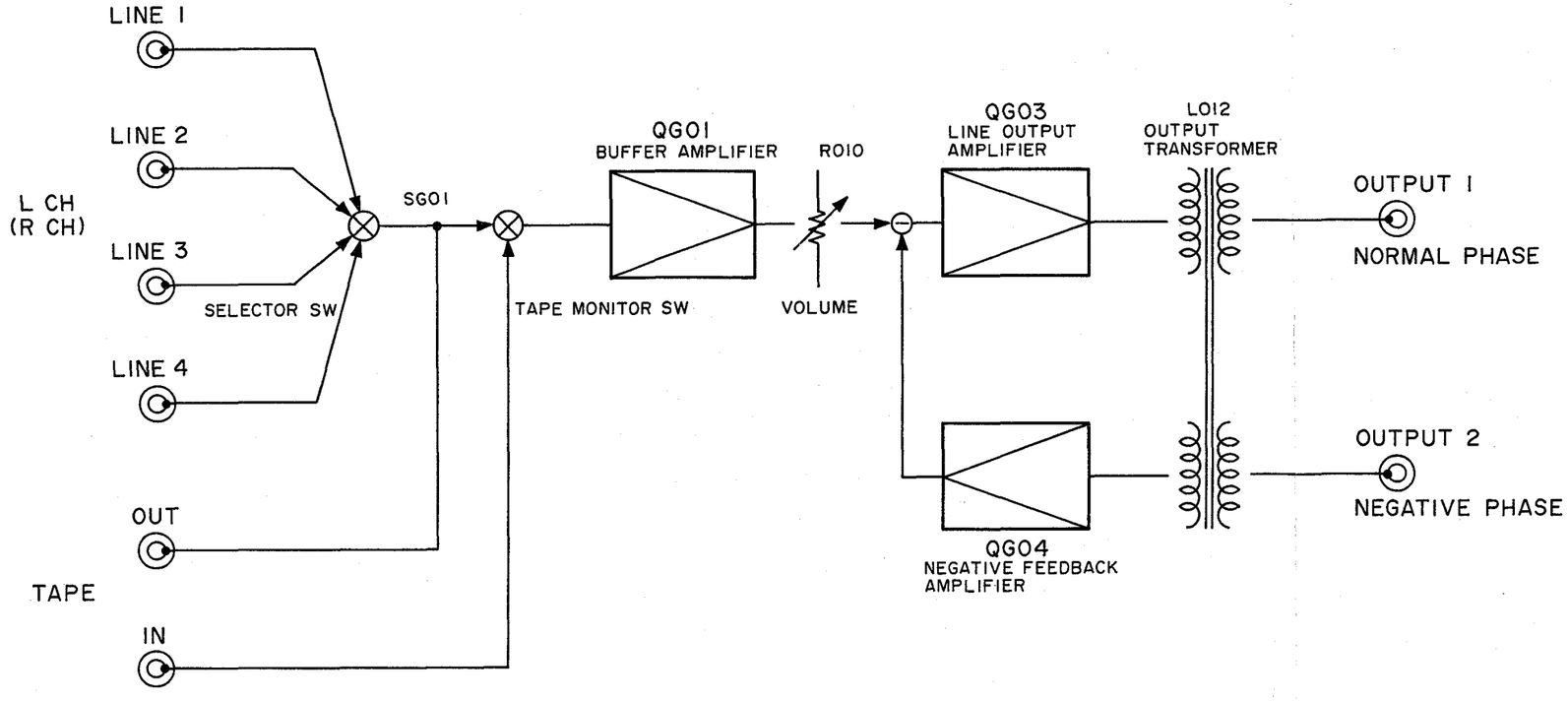
In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

TECHNICAL SPECIFICATIONS

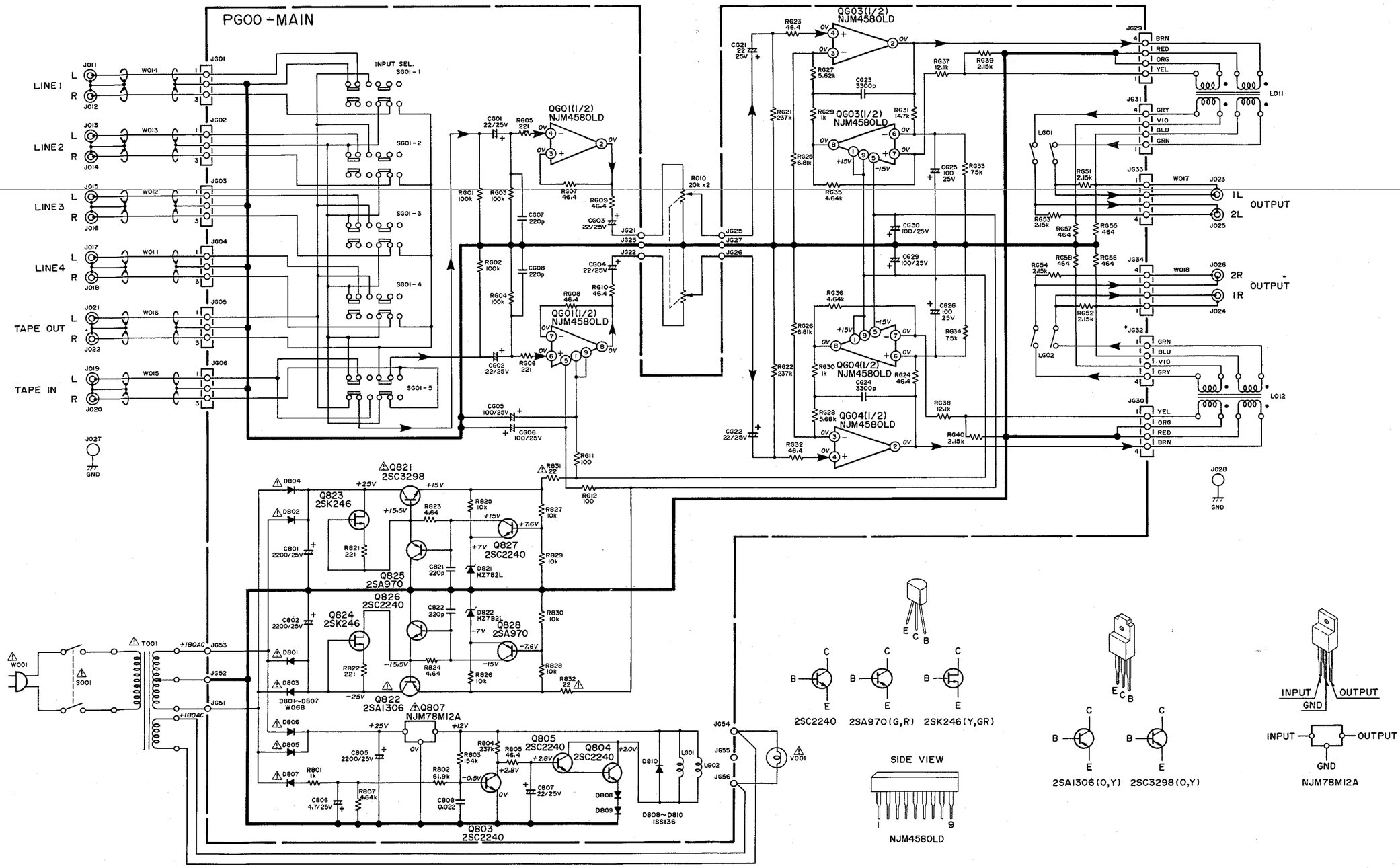
Input Sensitivity/Input Impedance	280 mV/47 kohms
LINE IN 1-4, TAPE IN	
Rated Output/Output Impedance	1.5 V/68 ohms
OUTPUT 1 in-phase output	
OUTPUT 2 reverse-phase output	
Total Harmonic Distortion (20Hz-20kHz)	0.03%
Signal-to-Noise Ratio (A weighted)	105 dB
Frequency Response (−3 dB)	20Hz-20 kHz
Channel Crosstalk 1 kHz	85 dB
10 kHz	70 dB
Power Supply	220/240V AC 50Hz
Dimensions (W × H × D)	250 × 85 × 215 mm
Weight	4 kg

Specifications and appearance are subject to change for modification without notice.

1. BLOCK DIAGRAM

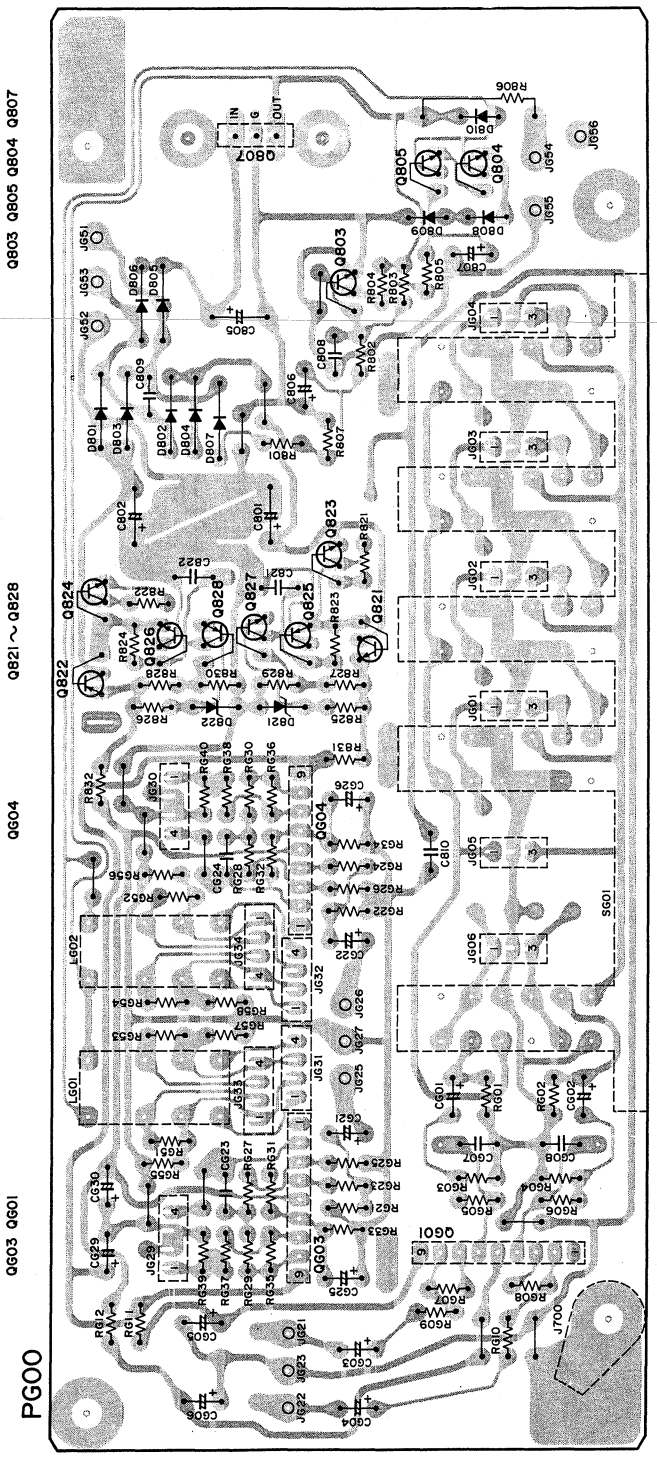


2. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern Side)

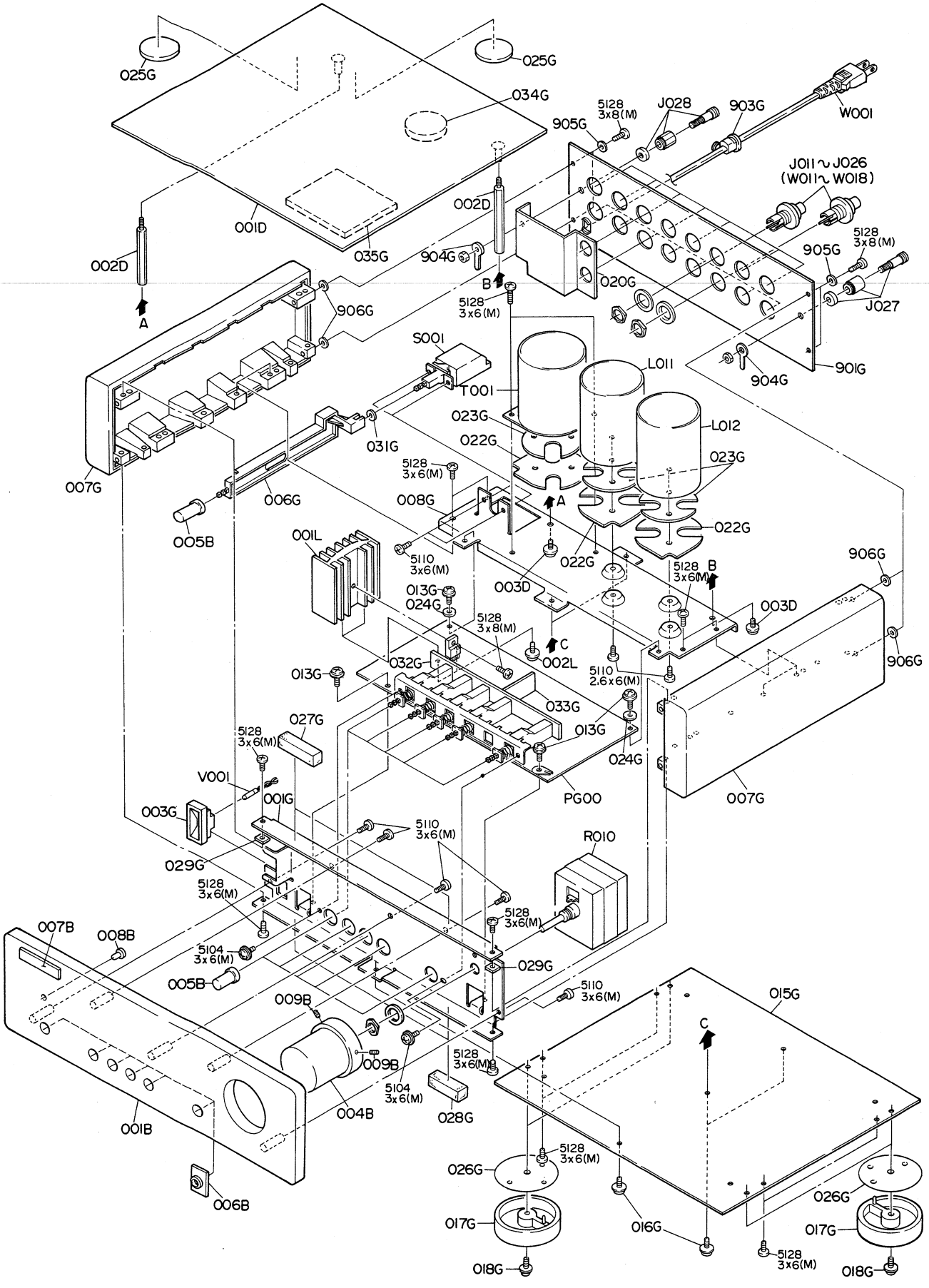


Note: The adjustment is not necessary with this unit.

NOTE ON SAFETY:
Symbol ⚠ Fire or electrical shock hazard. Only original partrs should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.


PG00
Q603 Q601
Q604
Q821 ~ Q828
Q803 Q805 Q804 Q807

3. EXPLODED VIEW AND PARTS LIST



REF. DESIG.	PART NO.	DESCRIPTION
001B	4822 447 50129	Front Panel
004B	4822 413 31644	Knob, Volume
005B	4822 410 60997	Button, Push
007B	4822 459 11014	Badge, MARANTZ
008B	4822 381 10841	Lens
009B	4822 502 10064	Screw, Socket M3 x 8
003D	4822 502 12514	F. Washer Screw F3 x 6
007G	4822 447 50122	Panel, Side
013G	4822 502 12509	B.T. Screw B3 x 6
016G	4822 502 12509	B.T. Screw B3 x 6
017G	4822 462 41759	Leg
018G	4822 502 12512	B.T. Screw B3 x 12
031G	4822 532 11396	Spacer, Link
901G	4822 447 50131	Rear Panel
002L	4822 502 12511	B.T. Screw B3 x 8
J011 ~ J026	4822 290 81419	Terminal, RCA Pin
J027	4822 290 81416	Terminal, GND-1
J028	4822 290 81416	Terminal, GND-2
L011	4822 140 10409	Output Transformer, L
L012	4822 140 10409	Output Transformer, R
R010	4822 101 30734	Variable Resistor, 20KΩ x 2
⚠ S001	4822 276 13016	Push Switch, Power
⚠ T001	4822 146 21585	Transformer, Main
⚠ V001	4822 134 40651	Lamp 6mA 8V
W031	4822 321 21442	Cord, RCA Pin
001T	4822 736 20993	User Manual

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4. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
ACVTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO aignment
Circuit Tester	Trouble shooting
DCVTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors potential of primary power to amplifier
Variable Autotransformer	Adjust level of primery power to amplifier
Shorting Plug	Shorts amplifier input to eliminate noise pickup

5. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R***: (1) GD05---140, Carbon film fixed resistor, ±5%, 1/4W
R***: (2) GD05---160, Carbon film fixed resistor, ±5%, 1/6W
① — Resistance value

Examples
① Resistance value

0.1Ω...001	10Ω...100	1kΩ...102	100kΩ...104
0.5Ω...005	18Ω...180	2.7kΩ...272	680kΩ...684
1Ω...010	100Ω...101	10kΩ...103	1MΩ...105
6.8Ω...068	390Ω...391	22kΩ...223	4.7MΩ...475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C***: CERAMIC CAP.
(1) DD1---370, Ceramic condenser
Disc type
①② Temp. coeff. P350 ~ N1000, 50V
Capacity value
Tolerance

Examples
① Tolerance (Capacity deviation)
±0.25pF...0
±0.5pF...1
±5%...5
* Tolerance of COMMON PARTS handled here are as follows:
0.5pF ~ 5pF...±0.25pF
6pF ~ 10pF...±0.5pF
12pF ~ 560pF...±5%
② Capacity value

0.5pF...005	3pF...030	100pF...101
1pF...010	10pF...100	220pF...221
1.5pF...015	47pF...470	560pF...561

C***: CERAMIC CAP.
(1) DK16---300, High dielectric constant ceramic condenser
Disc type
① Temp. chara. 2B4, 50V
Capacity value

Example
② Capacity value

100pF...101	1000pF...102	10000pF...103
470pF...471	2200pF...222	

C***: ELECTROLY CAP. (⧧), FILM CAP. (⧦)
(1) EA------10, Electrolytic condenser
One-way lead type, Tolerance ±20%
①②
Dielectric strength
Capacity value

Examples
① Capacity value

0.1μF...104	4.7μF...475	100μF...107
0.33μF...334	10μF...106	330μF...337
1μF...105	22μF...226	1100μF...108
		2200μF...228

② Working voltage

6.3V...006	25V...025
10V...010	35V...035
16V...016	50V...050

(2) DF15---350, Plastic film condenser
One-way type, Mylar ±5% 50V
①
Capacity value

Examples
① Capacity value

0.001μF (1000pF)...102	0.1μF...104
0.0018μF.....182	0.56μF...564
0.01μF.....103	1μF...105
0.015μF.....153	

REF. DESIG.	PART NO.	DESCRIPTION		
		PG00-MAIN CIRCUIT BOARD		
		PG00-CAPACITOR		
CG05	4822 124 23511	Elect 100μF		25V
CG06	4822 124 23511	Elect 100μF		25V
CG07	4822 123 30085	Mica 220pF	±5%	
CG08	4822 123 30085	Mica 220pF	±5%	
CG23	4822 121 43818	Film 3300pF	±5%	
CG24	4822 121 43818	Film 3300pF	±5%	
CG25	4822 124 23511	Elect 100μF		25V
CG26	4822 124 23511	Elect 100μF		25V
CG29	4822 124 23511	Elect 100μF		25V
CG30	4822 124 23511	Elect 100μF		25V
C801	4822 124 23513	Elect 2200μF		25V
C802	4822 124 23513	Elect 2200μF		25V
C805	4822 124 23513	Elect 2200μF		25V
C806	4822 124 23512	Elect 4.7μF		25V
C808	4822 121 43817	Film 0.022μF	±10%	
C809	4822 122 32486	Ceramic 0.01μF	+80%	−20%
C810	4822 122 32486	Ceramic 0.01μF	+80%	−20%
C821	4822 123 30085	Mica 220pF	±5%	
C822	4822 123 30085	Mica 220pF	±5%	
		PG00-RESISTORS (All Resistors are ±1% and 1/6W, unless otherwise specified)		
RG01	4822 116 80251	100KΩ		
RG02	4822 116 80251	100KΩ		
RG03	4822 116 80251	100KΩ		
RG04	4822 116 80251	100KΩ		
RG05	4822 116 82757	221Ω		
RG06	4822 116 82757	221Ω		
RG07 ~ RG10	4822 116 82759	46.4Ω		
RG11	4822 116 82749	100Ω		
RG12	4822 116 82749	100Ω		
RG21	4822 116 82758	237KΩ		
RG22	4822 116 82758	237KΩ		
RG23	4822 116 82759	46.4Ω		
RG24	4822 116 82759	46.4Ω		
RG25	4822 116 82764	6.81KΩ		
RG26	4822 116 82764	6.81KΩ		
RG27	4822 116 82762	5.62KΩ		
RG28	4822 116 82762	5.62KΩ		
RG29	4822 116 82751	1KΩ		
RG30	4822 116 82751	1KΩ		
RG31	4822 116 82754	14.7KΩ		
RG32	4822 116 82754	14.7KΩ		
RG33	4822 116 82765	75KΩ		
RG34	4822 116 82765	75KΩ		
RG35	4822 116 53691	4.64KΩ		
RG36	4822 116 53691	4.64KΩ		
RG37	4822 116 82753	12.1KΩ		
RG38	4822 116 82753	12.1KΩ		
RG39	4822 116 82756	2.15KΩ		
RG40	4822 116 82756	2.15KΩ		
RG51 ~ RG54	4822 116 82756	2.15KΩ		
RG55 ~ RG58	4822 116 82761	464Ω		

REF. DESIG.	PART NO.	DESCRIPTION	
R801	4822 116 82751	1KΩ	
R802	4822 116 82763	61.9KΩ	
R803	4822 116 82755	154KΩ	
R804	4822 116 82758	237KΩ	
R805	4822 116 82759	46.4KΩ	
R807	4822 116 53691	46.4KΩ	
R821	4822 116 82757	221Ω	
R822	4822 116 82757	221Ω	
R823	4822 116 53691	46.4KΩ	
R824	4822 116 53691	46.4KΩ	
R825 ~ R830	4822 116 82752	10KΩ	
▲ R831	4822 116 91288	22Ω	±5%
▲ R832	4822 116 91288	22Ω	±5%
		PG00-SEMICONDUCTORS	
▲ D801 ~ ▲ D807	4822 130 32155	Diode	W06B
D808	4822 130 80154	Diode	1SS136
D809	4822 130 80154	Diode	1SS136
D810	4822 130 80154	Diode	1SS136
D821	5322 130 81186	Zener	HZ7B2L
D822	5322 130 81186	Zener	HZ7B2L
QG01	4822 209 63334	IC	NJM4580LD
QG03	4822 209 63334	IC	NJM4580LD
QG04	4822 209 63334	IC	NJM4580LD
Q803	4822 130 43233	Transistor	2SC2240(GR, BL)
Q804	4822 130 43233	Transistor	2SC2240(GR, BL)
Q805	4822 130 43233	Transistor	2SC2240(GR, BL)
▲ Q807	4822 209 82828	IC	NJM78M12A
▲ Q821	4822 130 43311	Transistor	2SC3298(O, Y)
▲ Q822	4822 130 43023	Transistor	2SA1306(O, Y)
Q823	4822 130 42836	F.E.T.	2SK246(Y, GR)
Q824	4822 130 42836	F.E.T.	2SK246(Y, GR)
Q825	4822 130 42949	Transistor	2SA970(GR)
Q826	4822 130 43233	Transistor	2SC2240(GR, BL)
Q827	4822 130 43233	Transistor	2SC2240(GR, BL)
Q828	4822 130 42949	Transistor	2SA970(GR)
		PG00-MISCELLANEOUS	
J700	4822 290 40296	Terminal, Earth	
LG01	4822 280 20285	Relay	
LG02	4822 280 20285	Relay	
SG01	4822 276 50353	Push Switch, Input Select	

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